Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD S04-007 H2685

DATE RECEIVED: 08/18/04 LVL LOT # :0408L386

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B19PC9						
TOTAL ORGANIC CARBON	001	W	04LTC025	08/17/04	09/10/04	09/10/04
TOTAL ORGANIC CARBON	001 REP	W	04LTC026	08/17/04	09/15/04	09/15/04
TOTAL ORGANIC CARBON	001 MS	W	04LTC026	08/17/04	09/15/04	09/15/04
B19PD0						
TOTAL ORGANIC CARBON	002	W	04LTC025	08/17/04	09/10/04	09/10/04
B19PD1						
TOTAL ORGANIC CARBON	003	W	04LTC025	08/17/04	09/10/04	09/10/04
B19PD2						
TOTAL ORGANIC CARBON	004	W	04LTC025	08/17/04	09/10/04	09/10/04
LAB QC:						
TOTAL ORGANIC CARBON	MB1	W	04LTC025	N/A	09/10/04	09/10/04
TOTAL ORGANIC CARBON	MB1 BS	W	04LTC025	N/A	09/10/04	09/10/04
TOTAL ORGANIC CARBON	MB1	W	04LTC026	N/A	09/15/04	09/15/04
TOTAL ORGANIC CARBON	MB1 BS	W	04LTC026	N/A	09/15/04	09/15/04

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD S04-007 H2685
LVL#: 0408L386

W.O.#: 11343-606-001-9999-00
Date Received: 08-18-04

INORGANIC NARRATIVE

1. This narrative covers the analysis of 4 water samples.

2. The samples were prepared and analyzed in accordance with the method checked on the attached glossary.

3. Sample holding time as required by the method and/or contract was met for the sample analysis, however replicate and matrix spike analyses were performed past hold.

4. The results presented in this report are derived from samples that did not meet LvLI's sample acceptance policy as noted on the Sample Receipt Checklist.

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits.

7. The matrix spike recovery was within the 75-125% control limits.

8. The replicate analysis was within the 20% Relative Percent Difference (RPD) control limit.

9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

9/22/04
Date

njp\i08-386

208 Welsh Pool Road • Exton, PA 19341- 1313 • (610) 280-3000 • Fax (610) 280-3041

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	EPA /600	SW846	OTHER
Acidity	___ 305.1		
___Alkalinity ___Bicarbonate ___Carbonate	___ 310.1		
BOD	___ 405.1		___ 5210B (b)
Ion Chromatography:			
___Bromide ___Chloride ___Fluoride	___ 300.0	___ 9056	
___Nitrate ___Nitrite ___Phosphate	___ 300.0	___ 9056	
___Sulfate ___Formate ___Acetate ___Oxalate	___ 300.0	___ 9056	
Chloride	___ 325.2	___ 9251	
Chorine, Residual	___ 330.5 (mod)		
Cyanide, Amenable to Chlorination	___ 335.2	___ 9010B	
Cyanide, Total	___ 335.2	___ 9010B ___ 9014	___ ILMO4.0 (e)
Cyanide, Weak Acid Dissociable		___	___ 412 (a) ___ 4500CN-I (b)
COD	___ 410.4(mod)		___ 5220C (b)
Color	___ 110.2		
Corrosivity by Coupon		___ 1110(mod)	
Chromium VI		___ 7196A	___ 3500Cr-D (b)
Fluoride	___ 340.2		___ 4500-FC
Hardness, Calcium	___ 215.2		
Hardness, Total	___ 130.2		
Iodide			___ ASTM D19P202 (1)
Surfactant	___ 425.1		
___Nitrate-Nitrite ___Nitrate ___Nitrite	___ 353.2		
Ammonia	___ 350.3		
Total___ Kjeldahl ___ Organic Nitrogen	___ 351.3		
Total ✓ Organic ___ Inorganic Carbon	___ 415.1	✓ 9060	
Oil & Grease	___ 413.1	___ 9070	
___ pH ____ pH; paper	___ 150.1	___ 9040B ___ 9041A	
Petroleum Hydrocarbons, Total Recoverable	___ 418.1		
Phenol	___ 420.1 ___ 420.2	___ 9065 ___ 9066	
___Ortho ___Total Phosphate	___ 365.2		___ 4500-P B ___ C
Salinity			___ 210A (a) ___ 2520 (b)
Settleable Solids	___ 160.5		
Sulfide	___ 376.1	___ 9030B/9034 (acid soluble)	
Reactive ___Cyanide ___Sulfide		___ Section 7.3 (___9014___9030B)	
Silica	___ 370.1		
Sulfite	___ 377.1		
Sulfate	___ 375.4	___ 9038	
Specific Conductance	___ 120.1	___ 9050A	
Specific Gravity			___ D5057-90 ___ 213E (a)
Synthetic Precipitation Leach	___ 1312		
Total ___Dissolved __Suspended ___Solids	160 ___.1 ___.2 ___.3		
Total Organic Halides	___ 450.1	___ 9020B	
Turbidity	___ 180.1		
Volatile Solids:			
__Total __Dissolved __Suspended	___ 160.4		

Other: **Method:**

03

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

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INORGANICS DATA SUMMARY REPORT 09/16/04

CLIENT: TNUHANFORD S04-007 H2685 LVL LOT #: 0408L386

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B19PC9	Total Organic Carbon	2.6	MG/L	0.50	1.0
-002	B19PD0	Total Organic Carbon	2.5	MG/L	0.50	1.0
-003	B19PD1	Total Organic Carbon	2.4	MG/L	0.50	1.0
-004	B19PD2	Total Organic Carbon	2.5	MG/L	0.50	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/16/04

CLIENT: TNUHANFORD S04-007 H2685 LVL LOT #: 0408L386

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	04LTC025-MB1	Total Organic Carbon	0.50 u	MG/L	0.50	1.0
BLANK10	04LTC026-MB1	Total Organic Carbon	0.50 u	MG/L	0.50	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/16/04

CLIENT: TNUHANFORD S04-007 H2685 LVL LOT #: 0408L386

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B19PC9	Total Organic Carbon	7.9	2.6	5.0	105.9	1.0
BLANK10	04LTC025-MB1	Total Organic Carbon	5.1	0.50u	5.0	101.1	1.0
BLANK10	04LTC026-MB1	Total Organic Carbon	5.0	0.50u	5.0	100.9	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/16/04

CLIENT: TNUHANFORD S04-007 H2685 LVL LOT #: 0408L386

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B19PC9	Total Organic Carbon	2.6	2.7	3.0	1.0

Lionville Laboratory Use Only

0408L386

Custody Transfer Record/Lab Work Request

LIONVILLE LABORATORY INC.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU Hanford 504-007

Est. Final Proj. Sampling Date

Project # 11343-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC Spec Del Std TAT 30 Days

Date Rec'd 8/18/04 Date Due 9/17/04

		A
Refrigerator #		2
#/Type Container	Liquid	1AGL
	Solid	
Volume	Liquid	250
	Solid	
Preservatives		HCl/H2SO4
ANALYSES REQUESTED →		TOC

ORGANIC: VOA | BNA | Pest/PCB | Herb

INORG: Metal | CN

Lionville Laboratory Use Only

TOC

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	TOC
001	B19PC9			W	8/17/04	1100	1
002	D0						1
003	D1						1
004	D2						1

Special Instructions:

Run Matrix QC

DATE/REVISIONS:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Lionville Laboratory Use Only

Samples were:
1) Shipped ____ or Hand Delivered ____
Airbill # _____

2) Ambient or Chilled

3) Received in Good Condition Y or N

4) Samples Properly Preserved Y or N

5) Received Within Holding Times Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. _____ °C

Relinquished by	Received by	Date	Time
FedEx	JPurry	8/18/04	0910

Relinquished by	Received by	Date	Time
"COMPOSITE WASTE"	ORIGINAL REWRITTEN		

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **S04-007-183**

Page 1 of 1

Collector D.E. PARCHEN	**Contact/Requester** DL STEWART	**Telephone No.** 509-376-5056 **MSIN** **FAX**
SAF No. S04-007	**Sampling Origin** HANFORD SITE	**Purchase Order/Charge Code**
Project Title SURV/LTMC GW MONITORING, JULY 2004	**Logbook No.** DTS-SAWS-HS2	**Ice Chest No.** ERC-96-030 **Temp.**
Shipped To (Lab) Lionville Laboratory Incorporated (RCRA LabNet)	**Method of Shipment** GOVT. VEHICLE	**Bill of Lading/Air Bill No.** 7907 3556 9729
Protocol SURV	**Data Turnaround** 45 Days	**Offsite Property No.**

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐
TOTAL ACTIVITY EXEMPTION APPLIES UNLESS OTHERWISE STATED.
Batch all PNNL GW samples submitted under "W04", "A04", "S04" SAF's into one SDG, not to exceed SDG closure of 14 days.
Submit invoices & deliverables to DL Stewart, PNNL

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B19PC9		W	8-17-04	1100	1x20-mL P	Activity Scan	None
B19PC9		W	↓	↓	1x250-mL aGs*	9060_TOC: TOC (1)	HCl or H2SO4 to pH <2 Cool 4C
B19PD0		W			1x250-mL aGs*	9060_TOC: TOC (1)	HCl or H2SO4 to pH <2 Cool 4C
B19PD1		W			1x250-mL aGs*	9060_TOC: TOC (1)	HCl or H2SO4 to pH <2 Cool 4C
B19PD2		W			1x250-mL aGs*	9060_TOC: TOC (1)	HCl or H2SO4 to pH <2 Cool 4C
						Rel	
						8-17-04	

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.E. PARCHEN			AUG 17 2004 1400	Fed Ex			
Relinquished By			Date/Time	Received By			Date/Time
FedEx							8/18/04 0910
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

S = Soil		DS = Drum Solids	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford **Date:** 8/18/04

Purchase Order / Project# / SAF# / SOW# / Release #: 804-007

LvLI Batch # : 0408L386 **Sample Custodian:** JPW

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FedEX		Airbill# 790735569729	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received cooled or ambient?	Temp 1.1 °C		Cooler # ERC-96-030	
6.	Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	
7.	coc signed and dated?	☑ Yes	☐ No		
8.	Sample containers are intact?	☑ Yes	☐ No		
9.	All samples on coc received? All samples received on coc?	☑ Yes	☐ No		
10.	All sample label information matches coc?	☑ Yes	☐ No		
11.	Samples properly preserved?	☑ Yes	☐ No		
12.	Samples received within hold times? Short holds taken to wet lab?	☑ Yes	☐ No		
13.	VOA, TOC, TOX free of headspace?	☐ Yes	☑ No	☐ N/A all 4 samples have headspace	
14.	QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A	
15.	Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	☐ Yes	☑ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☑ Yes OJ voicemail 8/18/04	☐ No	☐ No Discrepancies	

SR-002-B